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FURTHER CONTRIBUTION TO THE FLORA OF THE KARIMNAGAR DISTRICT OF ANDHRA PRADESH

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ABSTRACT

The Karimnagar District lies in the Telangana Region of Andhra Pradesh (18°-19°10′ N ; 78°30′-80°20′E). It was recently surveyed with the objective of exploring the possibility of exploiting non agricultural plants of economic value. The survey and collection was done mainly at Mahadevpur, Nimmagodem and Manthani Ranges of the District. The present paper records those taxa which are found as additions to the flora of Karimnagar. The district lies within the tropical deciduous belt which occupies a larger part of the peninsular India. The forests abound in teak mixed with deciduous trees of a number of species, the preponderance of which depends on soil and habitat conditions.

INTRODUCTION

The Karimnagar District lies in the Telangana Region of the State of Andhra Pradesh. The Telangana Region has been surveyed floristically or for its economic plant resources, among others, by Walker (1849), Bradley (1849), Patridge (1911), Sayeed-ud-Din (1935, 1938, 1940, 1941), Suxena (1944-46), Khan (1952), Santapau (1954), Thothathri (1964), Sebastine, *et al.* (1960, 1967). The District Karimnagar has been botanically explored by Subba Rao and Kumari (1967), who undertook three trips in the forests of Kodimial, Raikal and Manthani ranges during July 1964, December 1964 and September-October 1965, and recorded a total of 434 taxa.

The district, being regarded as a backward one, has recently been chosen to be developed industrially and efforts are being made in this direction by the Council of Scientific and Industrial Research, New Delhi*. A survey of the district mainly in Mahadevpur, Nimmagodem and Manthani Ranges was conducted by the first author in the month of February 1973, with a view to explore the possibility of exploiting non-agricultural plants of economic value. A good number of specimens have also been collected during the survey and quite a number of them are additions to the taxa enumerated by Subba Rao and Kumari (*l.c.*). The present paper records in the enumeration list mainly those species which are additions to the area, the families being arranged more or less according to Bentham and Hooker's classification ; the genera and species are arranged under each family in alphabetical order. Some complementary information with regard to topography, climate and general vegetation is also included.

LOCATION AND TOPOGRAPHY

Karimnagar District lies between 18° and 19°10′ N, and 78°30′ and 80°20′ E in the State of Andhra Pradesh. It is bounded in the north by Adilabad District, in the south by Medek and Warangal Districts, in the west by Nizamabad District, and in the east by the borders of Chanda District of Maharashtra and Bastar District of Madhya Pradesh. The river Godavari forms the natural boundary in the north and the north-west. The total area of the district is about 12 lakh hectares (29.3 lakh acres).

The larger part of the district is mostly undulating flat land cut up by a number of streams which ultimately join either the river Godavari or the river Mannair, a tributary of the former. The elevation ranges from 185 m (600 ft) to 245 m (800 ft) above mean sea level. The land generally slopes more or less gradually from west to east, except along the hills. The main rivers flow west to east except along the eastern boundary, where their course is north to south.

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*Preliminary ideas on a master plan for development of industries in Karimnagar District, Andhra Pradesh. Regional Research Laboratory, Hyderabad-9 (C.S.I.R.)

A few spurs of the Sayadhari ranges run east to west, along the region of the district, occasionally projecting ridges in the north and south (Working plan for the Karimnagar Forest Division 1961-62 to 1975-76). Northern portion along the southern banks of river Godavari is hilly and undulating. Eastern portion along the western banks of Godavari is almost a plain country with small hillocks here and there. Hills in Jagtial and Kodimial and Manthani ranges extend over fairly long distances forming more or less continuous chains. They rise to a maximum height of about 425 m (1400 ft) to 460 m (1500 ft) above the surrounding area.

GEOLOGY AND SOIL

The larger area of the district is composed of the peninsular granite complex, comprising the pink and the grey granite. They are composed of quartz, grey or pink felspars, silica, muscovite and varying amounts of ferro-magnesium minerals. Dharwar rocks are formed in parts of Karimnagar, Sultanabad and Jagtial Taluka. They are composed of micaceous schists and the ferruginous quartzites.

The following soil types are met within the district : 1. Black Cotton Soil, 2. Loams, 3. Sandy, 4. Alluvial and 5. Lateritic.

Soils of this district are mostly sandy. The proportion of sand in western part is low resulting in clay-loam soils. Eastern part consists of interrupted stretches of dark brown and light colour loams.

CLIMATE

The climate is seasonal with three distinct seasons in a year, *viz.*, 1. the rainy season, which starts from the second week of June and lasts till the middle or end of September; 2. the winter season, which ushers in October and fades by the beginning or middle of February and 3. the summer season which extends mainly from March to the second week of June.

The temperature* during the rainy season ranges between 21.7°C to 43.7°C and during the winter season from 11.2°C to 36°C, the coldest month generally being that of December. During the summer season the temperature ranges from 15.6°C to 44.6°C, the hottest month being that of May.

The climatic conditions of the district are moderate except at Ramagundam in the Peddapalli taluka where the maximum and minimum temperatures are extreme. Ramagundam is known to be one of the hottest places in India.

The table gives a monthwise statement of the average rainfall at four taluka headquarters of the Karimnagar District (Anon., 1947).

VEGETATION

The Karimnagar District lies within the tropical deciduous belt which occupies a larger part of the peninsular India. Of the total area of about 12 lakh hectares (29.3 lakh acres) an area of about 2.5 lakh hectares (6.14 lakh acres) of the district is under forests; however, the old records show that a larger part of the district which is almost tree-less at present, once used to be densely covered with forests**. The characteristic feature of the area is the teak (*Tectona grandis* Linn. f.) forests; the teak occurs in pure formations or along with its associates in varying proportions. On well drained slopes rich with deep loam the teak may be represented to the extent of 30% to

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*The data on temperature have been taken from the Working Plan for the Karimnagar Forest Division 1961-62 to 1975-76 by S. Rao.

**Working Plan for the Karimnagar Forest Division 1961-62 to 1975-76 by S. Rao.

TABLE

Monthly and annual normals of rainfall (in mm) at four taluka headquarters of the Karimnagar District

Station	No. of years on which average based	Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.	Total
Karimnagar ...	61	6.7	17.1	14.3	19.0	22.2	142.5	212.5	173.4	169.9	63.5	23.0	6.2	870.3
Huzurabad ...	11	5.5	34.5	14.2	28.5	42.8	119.0	231.8	162.3	180.9	73.8	34.2	2.8	930.3
Jagtial ...	14	4.7	27.7	10.3	23.0	13.9	151.3	287.7	193.6	178.6	89.8	27.8	3.2	1011.6
Peddapalli ...	10	7.6	24.6	11.5	38.8	30.9	170.2	302.5	215.1	160.7	75.4	17.1	5.9	1060.3

50% or even more, occasionally tending to form pure and gregarious formations. On alluvial and dry shallow soils with bad drainage the percentage of teak goes down appreciably and that of the miscellaneous species likewise increases. In very dry places and on trap and sand-stone the teak trees become stunted and malformed or may even disappear altogether. Sandy loam and loamy clay soils support a luxuriant growth of mixed forests with abundance of teak associates. The common teak associates which increase or decrease in preponderance with the corresponding decrease or increase of teak are *Acacia catechu* (Linn. f.) Willd., *Adina cordifolia* (Roxb.) Hook. f. ex Brandis, *Albizia odoratissima* (Linn. f.) Benth., *Anogeissus latifolia* Wall. ex Bedd., *Bombax ceiba* Linn., *Boswellia serrata* Roxb., *Buchanania lanzan* Spreng., *B. angustifolia* Roxb., *Cleistanthus collinus* (Roxb.) Benth. & Hook. f., *Diospyros chloroxylon* Roxb., *D. exsculpta* Buch.-Ham., *D. montana* Roxb., *Dalbergia paniculata* Roxb., *D. latifolia* Roxb., *Dolichandrone falcatus* Seem., *Ehretia laevis* Roxb., *Emblica officinalis* Gaertn., *Hardwickia binata* Roxb., *Lagerstroemia parviflora* Roxb., *Lannea coromandelica* (Houtt.) Merrill, *Madhuca indica* Gmel., *Morinda tomentosa* Heyne ex Roth, *Pterocarpus marsupium* Roxb., *Schleichera oleosa* (Lour.) Merr., *Strychnos potatorum* Linn. f., *S. nux-vomica* Linn., *Terminalia bellirica* Roxb. and *T. crenulata* Roth (*T tomentosa* auct. non Wight & Arn.) etc., etc. When the underlying rock is sandstone there is seen a preponderance of *Chloroxylon swietenia* DC. and *Soymida febrifuga* A. Juss. On hard sandy soils *Acacia catechu* (Linn. f.) Willd. is very common and on clay and clay-loam where the underlying rock is lime stone, *Azadirachta indica* A. Juss. and *Hardwickia binata* Roxb. are quite frequent. On rocky and bouldery soils and also on the laterite, gregarious patches of *Xylia xylocarpa* (Roxb.) Taub. may be encountered. In the teak forests, the lower storey is comprised of *Butea monosperma* (Lam.) Taub., *Gardenia resinifera* Roth, *Holarrhena antidysenterica* Wall., *Nyctanthes arbortristis* Linn., *Xeromphis spinosa* (Thunb.) Keay, *X. uliginosa* (Retz.) Maheshwari, and others. *Cochlospermum religiosum* (Linn.) Alston is seen scattered throughout, in relatively open forests. Interspersed with arboreal associations there are seen patches of bamboos comprising mainly *Dendrocalamus strictus* Nees. The bamboo may also be seen in the forests to the exclusion of all undergrowth. The undergrowth in relatively drier areas consists of grasses other than bamboos.

There is a greater abundance of shrubby undergrowth and that of woody climbers in the mixed forests having lesser percentage of teak; in rich teak forests their frequency of occurrence is considerably reduced. The common shrubs and woody climbers met with in these forests are *Alangium salvifolium* (Linn. f.) Wang., *Annona squamosa* Linn., *Butea superba* Roxb., *Calotropis gigantea* (Linn.) Ait., *C. procera* (Ait.) Ait. f., *Cassia auriculata* Linn., *Calycopteris floribunda* (Roxb.) Lam., *Combretum ovalifolium* Roxb., *C. decandrum* Roxb., *Dalbergia volubilis* Roxb., *Dodonaea viscosa* (Linn.) Jacq., *Dregea volubilis* (Linn. f.) Benth. ex Hk. f., *Grewia hirsuta* Vahl, *Maytenus emarginata* Ding Hou, *Ochna squarrosa* Linn., *Opilia amentacea* Roxb., *Phoenix acaulis* Buch.-Ham. ex. Roxb., *Ventilago maderaspatana* Gaertn., *Woodfordia fruticosa* (Linn.) Kurz, and others. Along the bank of the river Godavari *Tamarix ericoides* Rottl. may be seen in abundance.

Eroded ravines and denuded hill slopes strewn with boulders support scrub vegetation. *Acacia nilotica* (Linn.) Del. subsp. *indica* (Benth.) Brenan, *Cassia auriculata* Linn., *Dodonaea viscosa* (Linn.) Jacq., *Flacourtia* sp., *Gardenia turgida* Roxb., *Nyctanthes arbortristis* Linn., *Prosopis juliflora* DC., low and bushy form of *Streblus asper*

Lour., *Vitex negundo* Linn., *Woodfordia fruticosa* (Linn.) Kurz and *Zizyphus* spp. are the commonest species in these habitats. Large clumps of *Borassus flabellifer* Linn. and *Phoenix humilis* Royle are frequently witnessed throughout, on the eroded lands and afford a beautiful landscape when viewed from a distance. The level waste lands are at times covered with stretches of *Butea monosperma* (Lam.) Kuntze.

Deep, inside the forests, the herbaceous elements during this season (February) are quite meagre. Among the species which have been collected from along the forest roads or dried up streams mention may be made of the following : *Aerva lanata* Juss., *A. monsonia* (Linn. f.) Mart., *Achyranthes aspera* Linn., *Celosia argentea* Linn., *Cassia tora* Linn., *C. occidentalis* Linn., *Elytraria acaulis* (Linn. f.) Lindau, *Hemigraphis latebrosa* Nees, *Indigofera linnaei* Ali (*I. enneaphylla* Linn.), *Justicia diffusa* Willd., *Lepidagathis cristata* Willd., *Sida acuta* Burm. f., *S. cordifolia* Linn., *S. cordata* (Burm. f.) Boiss. (*S. veronicaefolia* Lam.), *Tephrosia purpurea* (Linn.) Pers., *T villosa* (Linn.) Pers., *Tridax procumbens* Linn. The species that were growing in or near water included *Bergia ammannioides* Roxb., *Cleome viscosa* Linn., *Canscora diffusa* Br., *Hydrolea zeylanica* Vahl, *Ludwigia hyssopifolia* (G. Don) Exell (*Jussiaea linifolia* Vahl), *Oldenlandia umbellata* Linn. and *Rotala densiflora* (Roth) Koehne. *Argemone mexicana* Linn. has become a common feature near human habitations and has spread to the fringes of the forests and along the nallas and the streams.

The notable parasitic species found on the forest trees in the Karimnagar District are *Dendrophthoe falcata* (Linn. f.) Etting., *Korthasella opuntia* (Thunb.) Merrill (*Viscum japonicum* Thunb. ; Tel. Wajinika), *Scurrula parasitica* Linn. (Tel. Wajinika) and *Viscum nepalense* Spreng.

Paddy (*Oryza sativa* Linn. ; Tel. Vadlu), Jowar [*Sorghum bicolor* (Linn.) Moench] and Maize (*Zea mays* Linn. ; Tel. Mokkajounalu) are the chief cereals cultivated throughout the district. *Paspalum scrobiculatum* Linn. (Tel. Arugu, Arikelu, Nitaari-gaddi) and *Sorghum bicolor* (Linn.) Moench (*S. vulgare* Pers.; Tel. Jonna) are also cultivated. Tobacco (*Nicotiana tabacum* Linn. ; Tel. Pogaku) is the most important cash crop of the district which is extensively cultivated in Karimnagar. Cotton is also reported to be cultivated. *Parkinsonia aculeata* Linn. is frequently planted for hedge and often escapes to grow wild.

ENUMERATION

ANNONACEAE

Miliusa tomentosa (Roxb.) J. Sinclair (*Saccopetalum tomentosum* Hk. f. & Th.)

Tel. Chilkadudi, Nalla Chilkadudi, Baradudi. Near Mahadevpur, *S. L. Kapoor*, 70803. More or less common throughout the District. Fl. April ; Fr. June.

M. velutina Hook. f. & Thoms.

Tel. Pedda-Chilkadudi, Chenna-Chilkadudi. Near village Kudurpalli, *S. L. Kapoor* 70722. Fl. March-May ; Fr. June-July.

CAPPARACEAE

Maerua arenaria Hook. f. & Thoms.

Nimmagodem, *S. L. Kapoor* 70912. Rare. Fl. February.

ELATINACEAE

Bergia ammannioides Roxb.

Kaleswaram, *S. L. Kapoor* 70892. Fl. Cold season.

MALVACEAE

Sida acuta Burm. f.

Mahadevpur, *S. L. Kapoor* 70829. Occasionally seen in villages and along road sides. Fl. Cold season.

S. cordata (Burm. f.) Boiss. (*S. veronicaefolia* Lam.)

Tel. Gayapu-aku. Near village Kudurpalli, *S. L. Kapoor* 70780. Occasional. Fl. Cold season.

Sida cordifolia Linn.

Tel. Tella-antisa, Tetta-gorra-chettu, Muttava. Near village Kudurpalli, *S. L. Kapoor* 70742. Mahadevpur, *S. L. Kapoor* 70831. Occasional. Fl. Cold season.

Urena lobata Linn.

Mahadevpur, *S. L. Kapoor* 70838. Frequent near habitations. Fl. Cold season.

BOMBACACEAE

Bombax ceiba Linn.

Tel. Burgu. Near village Kudurpalli, *S. L. Kapoor* 70725. Common in Mahadevpur Reserve, Chintakani Range etc. Fl. Cold season; Fr. March-April.

OCHNACEAE

Ochna squarrosa Linn.

Tel. Sonari. Mahadevpur, *S. L. Kapoor* 70849. Common in Mahadevpur Reserve. Fl. March-April; Fr. May-June.

BURSERACEAE

Garuga pinnata Roxb.

Mahadevpur, *S. L. Kapoor* 70847. Common in all forests. Fl. Hot season; Fr. Cold season.

MELIACEAE

Chloroxylon swietenia DC.

Tel. Bilgu. Mahadevpur, *S. L. Kapoor* 70823. Common in most forests. Fl. March-April.

OPILIACEAE

Opilia amentacea Roxb.

Tel. Alka-daura-tiga. Near village Kudurpalli, *S. L. Kapoor* 70731. Nimmagodem, *S. L. Kapoor* 70915. Frequent climber in forests of Mahadevpur Reserve, Chintakani Range, etc.

RHAMNACEAE

Ventilago maderaspatana Gaertn.

Tel. Sungur-tiga, Sulgur-tiga. Nimmagodem, *S. L. Kapoor* 70907. Seen in Mahadevpur also. Common in almost all forests. Fl. Cold season; Fr. Hot season.

ANACARDIACEAE

Buchanania lanzan Spreng.

Tel. Mori, Morli, Chenna-morri. Mahadevpur, *S. L. Kapoor* 70871. Common in all forests. Fl. Jan.-Feb.; Fr. Feb.-May.

Lannea coromandelica (Houtt.) Merr. [*L. grandis* (Dennst.) Engler].

Tel. Dumpidi; Mahadevpur, *S. L. Kapoor* 70864. Very common in all forests. Fl. Hot season.

MORINGACEAE

Moringa oleifera Lam. (*M. pterygosperma* Gaertn.)

Tel. Mungay. Mahadevpur, *S. L. Kapoor* 70832. Planted or wild throughout.

PAPILIONACEAE

Butea monosperma (Lam.) Taub.

Tel. Modugu, Motuku. Near village Kudurpalli, *S. L. Kapoor* 70727. Very common in all forests. Fl. March-April; Fr. May-June.

B. superba Roxb.

Tel. Tiga-modugu, Tiga-motuku. Near village Kudurpalli, *S. L. Kapoor* 70728. Very common in all forests. Fl. March-April.

Dalbergia volubilis Roxb.

Tel. Guwidi-tiga. Mahadevpur, *S. L. Kapoor* 70856. In all forests but not very common. Fl. January-March.

Desmodium triflorum DC.

Tel. Munta-mandu. Mahadevpur, *S. L.* Kapoor 70857. Fl. & Fr. July-January.

Erythrina suberosa Roxb.

Tel. Mulu-modugu. Mahadevpur, to Kataram, *S. L. Kapoor* 70806. Fl. February-March.

Indigofera linnaei Ali (*I. enneaphylla* Linn.)

Tel. Yerra-palleru, Chera-gaddam, Chalapachchi. Near village Kudurpalli, *S. L. Kapoor* 70751.

Tephrosia villosa (Linn.) Pers.

Tel. Im-palli. Mahadevpur, *S. L. Kapoor* 70841. Seen alongwith *T. purpurea* Pers.

Zornia gibbosa Span. (*Z. diphylla* auct. non Pers.)

Mahadevpur, *S. L. Kapoor* 70904. Occasional on bunds of cultivated beds. Fl. Cold season.

CAESALPINIACEAE

Delonix elata (Linn.) Gamble (*Poinciana elata* Linn.)

Tel. Sankesula. Karimnagar, *S. L. Kapoor* 70916. Planted. Fl. February-March.

Hardwickia binata Roxb.

Tel. Yeppa, Nava-yeppa. Mahadevpur to Kataram, *S. L. Kapoor* 70809. Common along the Godavari in Mahadevpur Reserve, Chintakani Range, Nimmagodem etc.

MIMOSACEAE

Acacia catechu (Linn. f.) Willd.

Tel. Sundra, Nalla-sundra. Near village Kudurpalli, *S. L. Kapoor* 70778. Common in most parts such as Mahadevpur Reserve, Chintakani Range etc. Fl. During rains; Fr. Cold season.

Albizia odoratissima Benth.

Tel. Telsu. Mahadevpur, *S. L. Kapoor* 70863; Mahadevpur to Kataram, *S. L. Kapoor*, 70823. Frequently seen in all forests. Fl. April-June.

A. procera Benth.

Tel. Pachardu, Pachar. Mahadevpur, *S. L. Kapoor* 70836. Fairly common in moister forests. Fl. May-August.

COMBRETACEAE

Calycopteris floribunda (Roxb.) Lam.

Tel. Bondu-tiga. Near Mahadevpur, *S. L. Kapoor* 70794. Very common in forests of Mahadevpur Reserve and nearby forests. Fl. January-May.

Combretum ovalifolium Roxb.

Tel. Yada-tiga. Mahadevpur to Kataram, *S. L. Kapoor* 70811. Fl. January-March.

Terminalia bellirica (Gaertn.). Roxb.

Tel. Tani. Near Mahadevpur, *S. L. Kapoor* 70801. Very common in all forests. Fl. Hot season; Fr. Cold season.

BARRINGTONIACEAE

Careya arborea Roxb.

Tel. Buda-dhermi. Near village Kudurpalli, *S. L. Kapoor* 70715. Found in all forests in moister parts, in ravines and valleys. Fl. March-April.

ONAGRACEAE

Ludwigia hyssopifolia (G. Don) Exell (*Jussiaea linifolia* Vahl)

Mahadevpur, *S. L. Kapoor* 70830. Abundant in wet grounds. Fl. Cold season.

MOLLUGINACEAE

Mollugo pentaphylla Linn.

Mahadevpur, *S. L. Kapoor* 70905. Fl. Cold season.

ALANGIACEAE

Alangium salvifolium (Linn. f.) Wang.

Tel. Udugu, Urgu. Near village Kudurpalli, *S. L. Kapoor* 70782. Very commonly found in all forests. Fl. February-April; Fr. May-August.

RUBIACEAE

Adina cordifolia (Roxb.) Hook. f. ex Brandis

Tel. Kadami. Near village Kudurpalli, *S. L. Kapoor* 70783. Fl. June; Fr. End of rains.

Gardenia latifolia Aiton

Tel. Pedda-Karianga. Mahadevpur, *S. L. Kapoor* 70872. Frequent in all forests; seen as an epiphyte also. Fl. April-May.

G. turgida Roxb.

Tel. Kuka-elka, Tella-elka. Mahadevpur to Kataram, *S. L. Kapoor* 70818. Common in all forests. Fl. Hot season.

Ixora arborea Roxb. ex Sm. (*I. parviflora* Vahl non Lam.)

Tel. Korvi. Mahadevpur to Kataram, *S. L. Kapoor* 70816. Common to all forests. Fl. Feb.-April.

COMPOSITAE

Parthenium hysterophorus Linn.

Near village Kudurpalli, *S. L. Kapoor* 70756. Also seen at Kaleswaram. Often growing on sand in river beds. Fl. Cold season.

SAPOTACEAE

Madhuca indica Gmel. (*Bassia latifolia* Roxb.)

Tel. Ippa. Near village Kudurpalli, *S. L. Kapoor* 70721. Common in forests and in open villages; also planted. Fl. March-April.

ASCLEPIADACEAE

Calotropis gigantea (Linn.) Ait.

Tel. Jilledu. Mahadevpur, *S. L. Kapoor* 70855. Common about villages and waste lands. Fl. & Fr. Throughout the year.

Dregea volubilis (Linn. f.) Benth. ex Hk. f.

Tel. Pedda-gunja, Bandi-gurja. Mahadevpur to Kataram, *S. L. Kapoor* 70808. Nimmagodem, *S. L. Kapoor* 70911. Found in hedges and open scrub forests. Fl. Cold season; Fr. Hot season.

LOGANIACEAE

Strychnos nux-vomica Linn.

Tel. Esa-mushti, Esa-mutti. Near village Kudurpalli, *S. L. Kapoor* 70717. Fairly common in all forests. Fl. Cold season; Fr. March-April.

HYDROPHYLLACEAE

Hydrolea zeylanica Vahl

Near village Kudurpalli, *S. L. Kapoor* 70769. Abundant in wet grounds. Fl. Cold season.

BORAGINACEAE

Cordia sp. (? *macleodii* Hook. f. & Th.)

Tel. Iriki. Mahadevpur, *S. L. Kapoor* 70835. Common in the forests along the Godavari. Planted in Mahadevpur village. Fl. March-May.

SOLANACEAE

Nicotiana tabacum Linn.

Tel. Pogaku. Mahadevpur, *S. L. Kapoor* 70828. Cultivated extensively.

BIGNONIACEAE

Heterophragma quadriloculare (Roxb.) Schum (*H. roxburghii* DC.)

Tel. Bondugu. Mahadevpur to Kataram, *S. L. Kapoor* 70810. Fairly common in all forests. Fl. Hot season.

ACANTHACEAE

Barleria prionitis Linn.

Tel. Mulu-goranta. Kaleswaram, *S. L. Kapoor* 70881. Growing near villages.

Justicia diffusa Willd.

Mahadevpur to Kaleswaram, *S. L. Kapoor* 70859. Not frequent. Fl. Hot season.

VERBENACEAE

Gmelina arborea Linn.

Tel. Gumudu, Gumar-tek. Mahadevpur, *S. L. Kapoor* 70879. Occasional in all forests. Fl. February-April; Fr. May-June.

LABIATAE

Leucas aspera Spreng.

Tel. Tummi-kora. Near village Kudurpalli, *S. L. Kapoor* 70757. On way to Kaleswaram, *S. L. Kapoor* 70860. Occasional.

AMARANTHACEAE

Amaranthus tricolor Linn.

Tel. Doggali-kura. Mahadevpur, *S. L. Kapoor* 70899. Frequent along cultivated beds in vegetable farms and found as escape. Fl. Cold season.

STILAGINACEAE

Antidesma ghaesembilla Gaertn.

Tel. Junna-pulseru, Tella-pulseru. Mahadevpur to Kataram, *S. L. Kapoor* 70820. Not frequent. Fl. April-June; Fr. September-October.

EUPHORBIACEAE

Acalypha indica Linn.

Tel. Pappanti, Marupindi, Harita-manjari. Kaleswaram, *S. L. Kapoor* 70882. Occasionally seen growing from crevices of the temple stones.

MORACEAE

Streblus asper Lour.

Tel. Bar-inka. Near village Kudurpalli, *S. L. Kapoor* 70723. Near Mahadevpur, *S. L. Kapoor* 70793. Common chiefly along river banks and nallas, and in hedges near villages. Fl. January-March; Fr. April-May.

LILIACEAE

Asphodelus tenuifolius Cav.

Mahadevpur, *S. L. Kapoor* 70902. Common in the compounds of vegetable farms. Fl. Cold season.

PALMAE

Phoenix humilis Royle

Tel. Eeta-chattu. Mahadevpur, *S. L. Kapoor* 70873. Occupying large tracts. Fl. March.

CYPERACEAE

Juncellus pygmaeus Clarke

Kaleswaram, *S. L. Kapoor* 70887. Frequent on the Godavari bank.

GRAMINEAE

Aristida adscensionis Linn.

Tel. Shipri-gaddi. Near village Kudurpalli, *S. L. Kapoor* 70740. Grows all over the area.

Bothriochloa pertusa Camus

Mahadevpur to Kaleswaram, *S. L. Kapoor* 70877. Not frequent.

Brachiaria reptans (Linn.) Gard. et C. E. Hubb.

Tel. Garka-gaddi. Near village Kudurpalli, *S. L. Kapoor* 70785. Rare.

Eragrostis tremula Hochst.

Near village Kudurpalli, *S. L. Kapoor* 70768. Occasional, in wet grounds.

E. unioloides (Retz.) Nees

Near village Kudurpalli, *S. L. Kapoor* 70764. Abundant, growing in water.

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